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IN THE

Supreme Court of the United States

OCTOBER TERM, 1970.

No. 81

THE CHEMITHON CORPORATION,
Petitioner,

vs.

THE PROCTER & GAMBLE COMPANY AND THE PROCTER & GAMBLE MANUFACTURING COMPANY,
Respondents.

PETITION FOR WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FOURTH CIRCUIT.

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August 27, 1970.

THE GUNTHORP-WARREN PRINTING COMPANY, CHICAGO

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THE PROCTER & GAMBLE COMPANY
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MANUFACTURING COMPANY,
Respondents.

PETITION FOR WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FOURTH CIRCUIT.

Petitioner, The Chemithon Corporation, prays that a writ of certiorari issue to review the judgment of the United States Court of Appeals for the Fourth Circuit entered June 2, 1970.

OPINIONS BELOW.

The opinion of the District Court is reported at 287 F. Supp. 291 (D. Md. 1968) and is included in the Appendix hereto (A 3-53). The opinion of the U. S. Court of Appeals for the Fourth Circuit is reported at 165 USPQ 678 (4th Cir. 1970) and is included in the Appendix (A 1-2).

JURISDICTION.

The judgment of the United States Court of Appeals for the Fourth Circuit was entered on June 2, 1970.

The jurisdiction of this Court is invoked under 28 U. S. C. § 1254(1).

QUESTIONS PRESENTED.

1. Which Court has correctly defined the law for determining when a prior use of an invention is public, so as to invalidate another's patent:

   (a) this Court, the Courts of Appeals for the Second and Eighth Circuits and the Court of Customs and Patent Appeals all of which have held that, for a use to be public, there must be available, to the public, information on the prior use sufficient to enable one skilled in the art to practice the invention; or

   (b) the Court of Appeals for the Fourth Circuit which held a prior use to be public even though the prior user deliberately withheld from the public critical information necessary to enable practice of the invention (thereby permitting the prior user of establish an unpatented monopoly).

2. Must a patent application, whose disclosure is relied upon to overcome prior art dated less than a year before the application, disclose more than the prior art.*

3. When a patent disclosure uses two names interchangeably in describing an invention and the patent claims use only the second of the two interchangeable names, does an earlier application support the patent claims when the earlier application uses only the first of the two interchangeable names.*

* Questions 2 and 3 become moot if this Court finds the Fourth Circuit was wrong on Question 1.

CONSTITUTIONAL PROVISIONS AND STATUTES INVOLVED.

CONSTITUTION OF THE UNITED STATES, ART. 1, SEC. 8. The Congress shall have power . . . To promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.

UNITED STATES CODE, TITLE 35 § 102. Conditions for patentability; novelty and loss of right to patent.

A person shall be entitled to a patent unless—

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, . . .

STATEMENT OF THE CASE.

Petitioner, The Chemithon Corporation (hereafter "Chemithon") sued respondents The Procter & Gamble Company and The Procter & Gamble Manufacturing Company (hereafter collectively "P&G") in the District of Maryland for infringement of two U. S. Patents* issued to Chemithon. Jurisdiction of the District Court was invoked because a question rises under the Patent Laws of the United States.

P&G is the well-known detergent maker having 54% of U. S. packaged detergent sales, *F. T. C.* v. *Procter & Gamble Co.*, 386 U. S. 568, 573 (1967). Chemithon is a small developer and manufacturer of chemical processing equipment.

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* U. S. Patents Nos. 3,024,258 and 3,058,920.

Both patents in suit relate to detergent-making processes. The patented processes permit high quality detergent to be manufactured continuously in compact, relatively inexpensive equipment occupying no more than a normal-sized room compared to the older batch-type processes utilizing relatively enormous, cumbersome equipment occupying a much larger area and costing substantially more (Op., A 6-8).*

These processes were invented by petitioner Chemithon and by P&G, independently of each other. Chemithon offered the processes to all detergent makers, licensed the processes on a world-wide basis to P&G's competitors (e.g., Colgate and Lever Brothers) and disclosed the processes to the world in issued patents. P&G did none of these.

Before Chemithon's disclosure, the processes were unknown to P&G's competitors, although P&G had been using some of these processes for years (App. 444). Since Chemithon's disclosure, most of the substantial detergent makers throughout the world have taken a license under the patents in suit and have installed equipment to practice the patented processes.

After Chemithon's first disclosure of the patented processes to several of P&G's competitors, P&G had a story published in a trade journal describing the same processes as having been "top *secret*" at P&G for many years (App. 471).

P&G's principal defense here was that the patents were invalid under 35 U. S. C. § 102(b) because of prior *public* use of the patented processes by P&G more than one year

*"Op." refers to the opinion of the District Court.

"A" followed by a number refers to the Appendix accompanying this petition and to the page thereof.

"App." refers to the Joint Appendix before the Court of Appeals.

before the filing of the applications for patents (Op., A 12-13).

Most of the processes involved were in use at P&G more than one year before the first patent application filed by petitioner, Chemithon. The main question before the District Court was whether P&G's prior use of the processes was or was not "public" within the meaning of 35 U. S. C. § 102(b) (Op., A 13).

The P&G processes were practiced in closed equipment observed by outsiders visiting the P&G factories, but the processes could not be ascertained by inspection or observation of the equipment (Op., A 30). Certain information on the P&G processes was available to outsiders, but P&G deliberately withheld other information including all process limits (Op., A 44).

Over a period of years, thousands of outsiders were shown the P&G equipment or given such limited information about the P&G processes as P&G chose to disclose, or both, but no one ever learned enough about a P&G process to repeat it (App. 213, 234-5).

The patented processes embody certain process limits which are critical (Op., A 22, 27); and, without knowledge of these critical process limits, the patented processes could not be practiced by one skilled in the art of detergent making (Op., A 26, 29).

Although P&G deliberately withheld all process limits from the public (Op., A 44), the District Court concluded that P&G's prior use was "public" within the meaning of 35 U. S. C. § 102(b) and thus invalidated the Chemithon patent (Op., A 44).*

* One of the processes involved was in use at P&G less than one year before the first patent application of Chemithon; but this first application, although containing specific examples of that one process (Op., A 27), did not specify the critical process limits. This application was replaced by another application

On appeal to the Fourth Circuit Court of Appeals, a principal question was whether the District Court applied the correct law in concluding that P&G's prior use was public despite having found that P&G withheld critical process information knowledge of which was required to practice the invention.**

The decision of the District Court was affirmed *per curiam* without discussion, the Court of Appeals merely concluding that "the district judge applied correct principles of law". (A 2).

REASONS FOR GRANTING THE WRIT.

1. The Decision of the Fourth Circuit Is Contrary to the Policy or Objects of the Constitution and the Patent Statutes.

The guiding Constitutional and statutory policy is that he who discloses the invention or permits it to become available to the public is to be rewarded or protected, while he who deliberately withholds knowledge of the invention from the public has forfeited his rights to favor or *protection*. *Kendall* v. *Winsor*, 62 U. S. 322, 328 (1859):

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which did contain the critical process limits (Op., A 23). The District Court ruled that Chemithon could not rely on its first or earlier application to overcome P&G's prior use defense because the first application did not specify the critical process limits (Op., A 29).

The earlier application used one particular name to describe the one process. The disclosure of the second application and of the patent use both that name and a second name interchangeably. The patent claims use only the second of the two interchangeable names. The District Court held that Chemithon could not rely on its first application as disclosing the process in question because the first application did not contain the second of the two interchangeable names (Op., A 29).

** Additional questions were whether an earlier application need disclose more than the prior art it is relied upon to overcome and more than one of two names used interchangeably by the patent to describe a process.

> "... the inventor who, designedly, and with a view of applying it indefinitely and exclusively for his own profit, *withholds his invention* from the public, comes not within the policy or objects of the Constitution or acts of Congress ... and *with a very bad grace could he apply for favor or protection*. ... Hence, if during such a concealment an invention similar to or identical with his own should be made and patented ... the latter could not be inhibited or restricted upon proof of its identity with a machine previously invented and withheld and concealed by the inventor from the public."*

The decision of the Fourth Circuit is contrary to this policy. A practical effect of the decision is to protect those who flout the spirit and intent of the Constitutional Provision and of the patent statutes and punish those who observe them.

A further practical effect of the Fourth Circuit's decision is to reward P&G for successfully preventing the public and competitors from learning P&G's "top secret", cost-reducing, detergent-making processes while P&G was establishing a 54% dominance in the packaged detergent market. It is not the purpose of the Constitutional Provision and of the patent statutes to reward and protect a non-disclosing monopolist by meaningless semantics as to what is or is not "public".

Another practical effect of the Fourth Circuit's decision is to encourage others to monopolize by doing just what P&G did here:

> (1) deliberately restrict disclosure of a significant invention to prevent the public and the competition from learning enough to practice it, thus obtaining a monopoly on the invention without disclosing it; and then

* Emphasis is always added, unless otherwise indicated.

(2) assert the undisclosed invention as prior art against a subsequent independent inventor who *fully* disclosed the invention and seeks to enforce the rights he received in return for such disclosure.

2. The Decision of the Fourth Circuit Clearly Conflicts With Decisions of This Court, of Other Courts of Appeals and of the Court of Customs and Patent Appeals.

The Supreme Court, the Courts of Appeals for the Second and Eighth Circuits and the Court of Customs and Patent Appeals have held that, to invalidate a patent under 35 U. S. C. § 102(b), a prior publication or use must make available to the public sufficient information to enable one skilled in the art to practice the patented invention. *Seymour* v. *Osborne*, 78 U. S. 516, 555 (1871):

> "Patented inventions cannot be superseded by . . . a foreign publication . . . . of prior date, unless the description and drawings contain and exhibit a substantial representation of the patented improvement, *in such full, clear and exact terms as to enable any person skilled in the art or science to which it appertains to make, construct and practice the invention.* . . . ."*

Simmons v. *Hansen*, 117 F. 2d 49, 51 (8th Cir. 1941):

> "A valid patent cannot issue to an applicant for his alleged invention if it was known or used by others in this country before his invention or discovery thereof. . . . The invention, however, must have been known

* *Electric Storage Battery Co.* v. *Shimadzu*, 307 U. S. 5, 20 (1939) indicates that prior uses are not public where efforts are made to conceal the patented invention from anyone having a legitimate interest in understanding inventions in their field of interest. In the present case, P&G had an express written policy requiring the withholding of process limits from college engineering professors and their students on field trips at P&G (Op. A 38). These were certainly people having a legitimate interest in understanding the inventions.

to the public, or *there must have been an opportunity to acquire such knowledge as would enable one skilled in the art to reproduce it* without exercising further invention on his own. . . ."

Metallizing Engineer. Co. v. *Kenyon Bearing & A. P. Co.*, 153 F. 2d 516, 519 (2d Cir. 1946):

> "In Gillman v. Stern, supra, 2 Cir., 114 F. 2d 28, it was not the inventor, but a third person who used the machine secretly and sold the product openly. . . . *The only issue was whether a prior use which did not disclose the invention to the art was within the statute; and it is well settled that it is not.*"

Application of Borst, 345 F. 2d 851, 855 (C. C. P. A. 1965):

> ". . . the criterion should be whether the disclosure is *sufficient to enable one skilled in the art to reduce the disclosed invention to practice.* In other words, the disclosure must be such as will give possession of the invention to the person of ordinary skill." (Emphasis in original.)

The decision of the Fourth Circuit clearly conflicts with the decisions noted above because among the information P&G withheld from the public were process limits some of which were critical (Op., A 22, 27) and had to be known to practice the invention (Op., A 26, 29).

A practical effect of the Fourth Circuit decision is that, in the Fourth Circuit, a prior use is "public" even though the prior user deliberately withholds information necessary to enable practice of the invention.

3. The Decision of the Fourth Circuit Clearly Conflicts With a Decision of the Court of Customs and Patent Appeals That an Earlier Patent Application, Relied Upon to Overcome the Prior Art, Need Only Disclose as Much as the Prior Art Discloses.*

In determining whether a prior use or other prior art reference can be overcome by a disclosure in an earlier application, the criterion is whether the information in the earlier application is as much as the information available from the prior use.

Application of Ziegler, 347 F. 2d 642, 650 (C. C. P. A. 1965):

> "It is the showing in the foreign application which gives to the later U. S. application the benefit of its date. We distinguish the priority showing *for the purpose of overcoming a reference* from the *amount* of disclosure which an application must provide to support a generic claim. In re Steinpel, supra." (Emphasis in original.)

See also, *Application of Clark*, 356 F. 2d 987, 991 (C. C. P. A. 1966).

The decision of the Fourth Circuit clearly conflicts with the above-noted decisions by requiring the earlier application to disclose information (critical process *limits*) deliberately not disclosed by the prior art.

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*The correctness of the Fourth Circuit's decision on the use of interchangeable names in describing the invention is ancillary to this question.

CONCLUSION.

For the reasons set forth above, a writ of certiorari should issue to review the judgment and opinion of the Fourth Circuit.

Respectfully submitted,

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August 27, 1970.

APPENDIX.

UNITED STATES COURT OF APPEALS
For the Fourth Circuit

No. 13,325
No. 13,326

THE CHEMITHON CORPORATION,
Appellant and Cross-Appellee,

versus

THE PROCTER & GAMBLE COMPANY, and THE PROCTER & GAMBLE MANUFACTURING COMPANY,
Appellees and Cross-Appellants.

Appeal from the United States District Court for the District of Maryland, at Baltimore. Edward S. Northrop, District Judge.

(Argued April 8, 1970 Decided June 2, 1970)

Before SOBELOFF, WINTER and BUTZNER, *Circuit Judges.*

William A. Marshall (Charles J. Merriam, Alvin D. Shulman and Merriam, Marshall, Shapiro & Klose; H. Vernon Eney and Venable, Baetjer and Howard on brief) for appellant; George B. Finnegan, Jr. (William D. Denson, Jerome G. Lee and Morgan, Finnegan, Durham & Pine; William A. Grimes and Ober, Grimes & Shriver on brief), for appellees.

PER CURIAM:

Chemithon Corporation, holder of United States patents 3,024,258 and 3,058,920, for making synthetic detergents, brought this action against Procter & Gamble Company, charging infringement of its patents and misappropriation of its trade secrets. P & G challenged the validity of the patents and sought attorneys' fees under 35 U. S. C. § 285.

The district court held that P & G used the processes claimed by the patents for more than a year before Chemithon filed its applications, and that its use was public within the meaning of 35 U. S. C. § 102(b). Consequently the court held the patents invalid. It also held that P & G had not misappropriated Chemithon's trade secrets, but it denied P & G's request for attorneys' fees. In reaching these conclusions the district judge applied correct principles of law to findings of fact that are amply supported by the evidence. Finding neither error nor abuse of discretion, we affirm on the opinion of the district court. *Chemithon Corp.* v. *Procter & Gamble Co.*, 287 F. Supp. 291 (D. Md. 1968).

AFFIRMED.

IN THE UNITED STATES DISTRICT COURT
For the District of Maryland

THE CHEMITHON CORPORATION, *vs.* THE PROCTER & GAMBLE COMPANY and THE PROCTER & GAMBLE MANUFACTURING COMPANY.	No. 14315. Civil Action.

Filed: June 25, 1968

Charles J. Merriam, William A. Marshall, Alvin D. Shulman, Merriam, Marshall, Shapiro & Klose, Chicago, Illinois, and Benjamin R. Civiletti, Venable, Baetjer and Howard, Baltimore, Maryland, for plaintiff.

George B. Finnegan, William D. Denson, Jerome G. Lee, John C. Vassil, New York, New York, and William A. Grimes, Ober, Williams and Grimes, Baltimore, Maryland, for defendants.

NORTHROP, *District Judge*.

This is a suit for infringement of two patents and for misappropriation of three trade secrets. Plaintiff, The Chemithon Corporation [hereinafter referred to as Chemithon] is a corporation organized under the laws of the State of Washington and has its principal place of business in Seattle, Washington. Defendants, The Procter & Gamble Company and The Procter & Gamble Manufacturing Company [hereinafter collectively referred to as P&G] are Ohio corporations having their principal place of business in Cincinnati, Ohio. P&G has a regular place of business in Baltimore, Maryland, and the acts complained of occurred within the District of Maryland. Jurisdiction

has been demonstrated and is admitted, and P&G has waived venue.

Chemithon is the owner of both patents in suit, United States Patent No. 3,024,258 [hereinafter referred to as the '258 patent] and United States Patent No. 3,058,920 [hereinafter referred to as the '920 patent] and the three trade secrets. The named inventors of the two patents are Richard and Burton Brooks, both officers of Chemithon.

Chemithon commenced this action on December 27, 1962. P&G answered, and denied infringement and the validity of the patents and denied it had misappropriated any of the trade secrets alleged. By counterclaim P&G seeks affirmative relief asking that both patents be declared invalid, not infringed, and unenforceable by reason of inequitable conduct and unclean hands of Chemithon. It also requests reasonable attorneys' fees on the ground that this is an exceptional case within the provisions of 35 U. S. C. § 285.

The case is before the court after trial held from September 18 to November 7, 1967, involving 28 court days, the presentation of about 600 exhibits, and the testimony of 21 witnesses. The parties have submitted post-trial briefs and proposed findings of fact and conclusions of law totaling more than 600 pages.

Background.

Because of the nature of the patents and trade secrets in suit, it is necessary, as a preliminary matter, to review the general background of the subject matter involved. The discussion, necessarily, will be limited and simplified, and it is presented only with the view to understand more clearly the disclosures of the patents, the trade secrets, and the disputed issues of the case.

Both patents and all three trade secrets are related to

chemical processes used in the making of synthetic detergents sold as household washing products. For many years soaps were manufactured by the neutralization of fatty oils which were derived from several natural sources, viz, animal fats, vegetable oils, and so forth. After World War II, manufacturers turned to new materials as substitutes. One of these materials was a class of organic chemicals known as alkyl benzenes, a hydrocarbon liquid derived from petroleum, which could be reacted in a chemical process, called sulfonation, with a sulfonating agent to produce chemical compounds known as alkyl benzene sulfonates (ABS). ABS have surface active properties which make them particularly useful as components of synthetic detergents.

When a different organic hydrocarbon material, such as fatty alcohol, is substituted for alkyl benzene, the reaction with the sulfating agent is called sulfation, as opposed to sulfonation, and the final product is an organic sulfate-type detergent, rather than a sulfonate. In the early days of the soap industry most synthetic detergents were so made.

As is usual with chemical processes, the making of synthetic detergents entails chemical reactions occurring in steps one after the other. In the first step, sulfonation or sulfation, the alkyl benzene or other hydrocarbon is reacted with an agent, usually concentrated sulfuric acid. Oleum, a solution of sulfur trioxide in sulfuric acid, is the prefered form of sulfonating agent. The hydrocarbon is converted into an intermediate reaction product called, in the case of sulfonation, alkyl benzene sulfonic acid, with some excess sulfuric acid left over. The next step is to neutralize the acidic reaction material with an alkalai, and this produces the desired active detergent. At the same time there is formed in the product at neutralization an inert by-product called sodium sulfate, which results from the

concurrent neutralization of the excess sulfuric acid that is left over from the first step of the process. It has little, if any detergent activity.

Sometimes, in order to increase the ratio of the active ABS to the inert sodium sulfate in the final product, a portion of the excess sulfuric acid is separated and removed prior to its neutralization. When the excess sulfuric acid is so removed and the remaining product is neutralized, a high-active detergent results because it contains a lesser proportion of the inert material. When used, this separation step is called "settling" or "acid-layering".

The neutralized product of the operation, either with the excess sulfuric acid settled out or with it present in neutralized form, is a thick liquid mixture called "slurry." This is then mixed with various additives in a blending vessel and then dried forming the final product.

Sulfonation and sulfation, as such, [1] relatively old. However, as carried out prior to the discovery of the process claimed in the two patents in suit, the old processes had a number of inherent weaknesses. For example, in the initial reaction between the hydrocarbon and the reacting agent, high heats are liberated which seriously endangered the color of the product, an important consideration in the manufacture of household detergents. Furthermore, the recovery of the excess sulfuric acid by

1. In the '258 patent the prior art is described as follows:

"[I]n order to separate the sulfonic acid product and the sulfate products from the excess sulfonating agent such as sulfuric acid, the mixture is added to sufficient water to decrease the strength of the sulfuric acid to about 80%. In this concentration and under these conditions the two phases, i.e., the product phase and the excess reactant phase, separate in about four hours. The reason for this slow separation is that the sulfuric acid phase is emulsified in the process in the product phase or the sulfonic acid phase. The viscosity of the sulfonic acid phase is very high. Naturally, with an emulsion of sulfuric acid in the sulfonic acid the viscosity will be quite high. Because of this high viscosity the

settling or acid-layering was slow and difficult.[1] The separation step, taking a considerably longer period of time than the initial sulfonation reaction, necessitated the use of a batch process, as opposed to more desirable and more efficient continuous process.

The batch process had several other weaknesses which limited its usefulness. For example, in order for it to have a reasonable output, a large reaction vessel, a large settling tank and a large neutralizing vessel were required. The large reaction vessel in turn necessitated a long time for the mixing of the sulfonating agent and the hydrocarbon—that is, a long reaction time—which makes controlling the temperature very difficult. This problem, inherent in all the various stages of the process, resulted in a tendency for the product to become degraded.

The Patents.

According to the '258 patent the discovery disclosed is that

> "[I]f the two normally immiscible reactants are simultaneously and instantaneously introduced and thoroughly mixed in a system of small volume, the reaction rate is very rapid, and often true solutions are formed when careful attention is paid to the concentration of the sulfonating agent. This permits the sulfonation reaction to take place in a matter of minutes instead of hours. Secondly, the separation of the excess sulfonating agent from the sulfonic acid product is very rapid if there is formed an emulsion comprising as the continuous phase the sulfuric acid and having the more viscous sulfonic acid dispersed therein. . . .

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separation of the emulsion into the product and the excess sulfonating agent requires a considerable period of time." '258, 2/61-3, 4; PX 3.

[The column and line numbers of patents will be indicated as column/line-column/line. PX is Plaintiff's Exhibit.]

> "The result is a process which can be operated continuously, producing superior products over those now known and which can be carried out in equipment smaller and considerably less expensive than any shown by the prior art." '258, 3 60-4/3.

In the '920 patent the disclosure is of a process where the operations of sulfonation, sulfation, and neutralization are performed in series or tandem operations. The invention is

> "for the series sulfonation of an aromatic and the sulfation of an alcohol so as to produce a sulfonic acid and an organic sulfuric acid which can be neutralized together to make a surface active material." '920, 1/9-14.

The sulfonation stage of the '920 patent is comparable to the stage in the '258 patent. After this reaction, the product is fed into a sulfation stage where it is mixed with streams of fresh alcohol, fresh oleum, and cooled recycled output from the sulfation stage. Thereafter, the product from the two stages is neutralized. The gist of the invention according to Chemithon resides in a combination of conditions for obtaining maximum conversion of raw materials and for maintaining a single phase solution, especially in the second stage, notwithstanding the mixing therein of (1) sulfation reaction product; (2) fresh alcohol; (3) fresh oleum; and (4) the output of the product of the sulfation stage.[2]

P&G's Use of the Patents.

Because proof of P&G's use of the claims of both patents was supplied primarily by a stipulation among the parties, which is attached to the pretrial order, it will not be necessary to go into great detail with respect to all the

2. R. 99 [R followed by a number refers to page in the transcript of the trial.]

claims of the patents. It is sufficient for present purposes to categorize the various claims. Thus, the claims of the '258 patent—twenty-one in all—can be classified as those claims which relate to sulfonation or sulfation, namely claims 1-4 and 6-8 and those which relate to fast settling or acid-layering, namely claims 5 and 9-21,[3] all the other claims of the patent. This patent was issued on March 6, 1962, on a patent application dated June 11, 1957, which was a "continuation-in-part" application of an earlier and abandoned application dated January 30, 1956. The stipulation of the parties states that as to the sulfonation or sulfation claims, P&G practiced a process falling within the terms of the claims more than one year prior to January 30, 1956, and between March 6, 1962, and December 27, 1963. Originally there was no concession with respect to P&G's practice of claim 6 after the patent issued on March 6, 1962. This claim relates to a sulfation process, and the issue was whether the sulfation stage of P&G's sulfonation-sulfation process falls within the terms of the claim. In P&G's process, during this period, fatty alcohol and a portion of the acid were introduced into the zone of vigorous mixing in separate streams; but the preformed sulfation reaction mixture and the preformed sulfonation reaction mixture carrying with it unreacted sulfuric acid from the prior stage were premixed and entered together into the same zone of vigorous mixing.[4] The unreacted sulfuric acid from the prior stage thereafter reacted with fatty alcohol.[4] A comparison of the claim with P&G's series process[5] shows that there is literal correspondence

3. Claim 18 has not been asserted against P&G. For convenience claims 9-21 are generally referred to as a group, with the understanding that infringement of claim 18 is not in suit.

4. Stipulation attached to the pretrial order.

5. DX 1134 [DX is Defendant's Exhibit.]

between the two.[6] Thus, the court finds that claim 6 was practiced by P&G after March 6, 1962, as well as prior to January 30, 1956, as stipulated by the parties. It should be noted that while there was no concession made by P&G with respect to claim 6, it has not refuted Chemithon's demonstration of its use after the issuance of the patent nor contested it in its post-trial briefs.

With respect to all the other claims of the '258 patent, claims 5 and 9-21, all relating to fast settling, it is stipulated that P&G practiced a process falling within the terms of the claims between March 6, 1962, and December 27, 1962, without exception, and more than one year prior to June 11, 1957, with one exception. The patent specifies that

> "In regard to the separation of the sulfonic acid product from the excess sulfonating agent we find it to be essential that the system through the separating mixer be *free of gas such as air.*" '258, 8/71-74. [Emphasis supplied.]

The single exception noted relates to this condition of air or gas exclusion or the prevention of air entrainment in the system, which is recited in claims 5, 11, and 20. Chemithon has alleged that P&G learned in confidence from Chemithon in April of 1957 that air had an adverse effect on settling and that prior to that date P&G knew only that air caused pump cavitation and other related pump problems. Chemithon has separately claimed damages for this alleged appropriation of the air-exclusion trade secret, and a detailed examination of the issue of whether P&G in fact knew of the effects of air on settling

6. The following three features are depicted which correspond to the features of claim 6: (1) a zone of vigorous mixing (a centrifugal pump) for the two reactants, fatty alcohol and oleum; (2) avoidance of pre-mixing of the fresh reactants before they enter the reaction at the mixing pump; and (3) mixing the fresh reactants in the presence of cooled, recycled, preformed sulfation reaction mixture.

will be deferred to the discussion of the trade secret claims. It is sufficient at this point to note that the '258 patent teaches three ways of accomplishing air exclusion or preventing the entrainment of air: first, the use of a closed system;[7] second, maintenance of a positive pressure on the system by placing a valve on the discharge line and throttling the same until a positive pressure is maintained on the entire system;[8] and third, expelling the air or venting the system at the time of the start-up.[9] P&G demonstrated, and it was not refuted, that since the 1940's P&G practiced air avoidance in all its systems using not only the three methods specified in the patent,[10] but additional measures such as forcing liquid acid mix outward through the pump packing so that in-leakage of air would be impossible.[11]

7. '258, 9/18.

8. '258, 8/74-9/8.

9. '258, 9/8-10.

10. George T. Broadfoot, department head of P&G's Engineering Division, testified without contradiction that all of P&G's systems since 1945 were closed, that air was vented on start-up, and that the systems were pressurized above atmospheric pressure by a throttle valve and an automatic back pressure controller. R. 1212-14, 1223, 1248. P&G's Process Standards for sulfonation, sulfation, and series sulfonation-sulfation, as well as engineering drawings, are in evidence and corroborate Mr. Broadfoot's testimony, as well as the testimony of Douglas O. Robinette, a chemical engineer in P&G's Engineering Division, and James W. Hartman, formerly engaged in P&G's International Division working on research and development and primarily responsible for P&G's high-active process. See, e.g. DX 375 and DX 383 (Process Standards) and DX 372 and DX 373 (Engineering Drawings of the high-active process in Baltimore).

11. On July 30, 1953, a memorandum was sent to all the factories manufacturing Tide and Dreft which stated:

"(3) The amount of acid mix leakage in drops per minute will be largely dependent on the suction pressure carried on the sulfator. This can be regulated by the back pressure controller. However, lower back pressure will give less leakage. No leakage, as reported by one factory, is undesirable because it indicates a vacuum on the packing gland. This will pull air into the system which will reduce pump performance and mixing effect, and will lead to air crutched paste. There should always be some leakage out of the packing gland." DX 399.

Professor Morton, Professor of Engineering at the University of Manchester, England, a witness for P&G testified that under such conditions air leakage into the system was impossible.[12]

The methods specified in the patent for air exclusion were utilized, as already noted, in *all* systems practiced by P&G. Of course this includes the fast-settling process practiced in Baltimore. With respect to this process, the testimony of Mr. Broadfoot, Mr. Robinette, and Mr. Hartman is adequately corroborated by contemporaneous drawings, reports, and Process Standards.[13] And this evidence was substantially uncontested by Chemithon. This court finds, consequently, that P&G practiced a process falling within the terms of the fast-settling claims of the '258 patent, claims 5 and 9-21, including the condition specified in claims 5, 11, and 20 relating to air exclusion, more than one year prior to June 11, 1957.

A further admission is contained in the pre-trial stipulation and this relates to the '920 patent. This patent issued on October 16, 1962, on an application dated July 7, 1959. It is admitted that P&G practiced a process falling within the terms of both claims of the patent more than one year prior to July, 1959, and between March 6, 1962, and December 27, 1962.

Defense.

The extraordinary character of this suit lies in the stipulation just referred to and to a stipulation entered into at trial by which Chemithon conceded that, except for the fast-settling claims of the '258 patent, P&G is the prior inventor of these processes.[14] P&G also claimed

12. R. 3174-3176.

13. See note 10.

14. R. 986.

that it is the prior inventor of the fast-settling claims as well. And it has defended Chemithon's allegation of infringement on the grounds that its prior inventorship and prior use of these processes invalidates the patents pursuant to 35 U. S. C. § 102(g) and (b). However, neither P&G's prior inventorship nor its prior use will constitute a bar to Chemithon's patents unless these processes were used publicly and not suppressed or concealed.

A finding of "public use" by P&G would not invalidate all the claims of the '258 patent under 35 U. S. C. § 102(g)[14a] for, as pointed out above, inventorship of the fast-settling claims is disputed. However, such a finding would invalidate both patents in suit under 35 U. S. C. § 102(b) for it provides for invalidating a patent if it was in *public use more than one year prior to the application* for a patent thereon, irrespective of who in fact is the inventor or when the invention was in fact made.[14b]

APPLICATION FILING DATES.

As an initial matter, then, it must be determined what date is to be accorded the various claims of the patents in order to assess the defense of prior public use under 35 U. S. C. § 102(b).

With respect to claims 1-4 and 6-8 of the '258 patent

14a. § 102(g) provides: "A person shall be entitled to a patent unless . . . (g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other."

14b. § 102(b) provides: "A person shall be entitled to a patent unless . . . (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States. . . ."

and both claims of the '920 patent there is no problem. The prior-use stipulation of the parties admits that P&G's uses were more than one year prior to any application for a patent thereon. As to claims 5 and 9-21 of the '258 patent there are two possible effective filing dates. These are January 30, 1956, and June 11, 1957.

The '258 patent was issued on an application, Serial No. 665,069, filed on June 11, 1957. The patent states that the application was "continuation-in-part" of an earlier application, Serial No. 562,141, filed January 30, 1956, and thereafter abandoned. The latter application is referred to herein as the "parent" application.

A continuation-in-part application is one that repeats a portion of an earlier application but also adds matter not disclosed in the earlier one.

> "A continuation-in-part is an application filed during the lifetime of an earlier application by the same applicant, repeating some substantial portion or all of the earlier application *and adding matter not disclosed* in the earlier case." Manual of Patent Examining Procedure, sec. 201.08, 3d ed., Nov. 1961, U. S. Patent Office; original emphasis.

If any claim covers subject matter disclosed in both the parent application and the continuation-in-part application (hereinafter referred to as the CIP) the priority date of the claim is the filing date of the parent application, January 30, 1956. 35 U. S. C. § 120. As for a claim containing subject matter disclosed for the first time in the CIP application, that claim has a priority date corresponding to the filing of that application, June 11, 1957. In other words, the priority date is determined not by the date the invention was claimed, but rather when it was first disclosed in an application. *Technicon Instruments Corp.* v. *Coleman Instruments, Inc.*, 255 F. Supp. 630, 641 (N. D. Ill. 1966).

The description of the schematic flow diagram accompanying the '258 patent relates that after the initial reaction

> "[The] solution passes to a heat exchanger . . . and from the heat exchanger the mixture is split into two fractions, a first fraction which is recirculated through the reaction mixer . . . along with the sulfonating agent and the reactant, and a second fraction which passes through a reaction chamber . . . wherein the sulfonating agent substantially sulfonates the reactant." '258, 4/51-57.

Claims 3, 7, 8, and 9-19 of the '258 patent expressly define the invention as a process with 15:1 as the minimum recycle ratio in the sulfonation loop described above. For example, claim 3 claims as the invention

> "A process for sulfonating an alkyl benzene having from 8-18 carbon atoms in the alkyl group which comprises introducing said alkyl benzene and a sulfonating agent, selected from the group consisting of concentrated sulfuric acid and fuming sulfuric acid, into a recycle stream of reaction mixture of said alkyl benzene and sulfonating agent with vigorous and thorough admixing, the residence time in said recycle stream not substantially exceeding 3 minutes, *the rate of recycling the reaction mixture to the rate of feed of alkyl benzene and sulfonating agent being a minimum of 15 times the rate of feed of alkyl benzene and sufonating agent*, withdrawing an output stream of reaction mixture from said recycle stream, and subjecting the reaction mixture of said output stream to digestion for a period of time not substantially exceeding about 15 minutes whereby the alkyl benzene is substantially completely reacted." '258, 17/17-33. [Emphasis supplied.]

The parent application did disclose the use in the reaction step of recycled reaction solution, but it said nothing whatever as to a recycle ratio. The description states that

> "One of the ways of regulating the temperature of the

> reaction solution is to recycle a relatively small volume of the reaction solution after it has passed through the reaction heat exchanger. This recycled reaction solution flows through the reaction mixer along with the sulfonating agent and the reactant, and functions as a heat sink or an absorber of the heat of reaction.
>
> "...
>
> "One of the main advances of our process is the relatively small volume of the reaction solution and the small volume of the recycling reaction solution." DX 950A, p. 9, lines 23-29; p. 10, lines 20-22.

Although the parent application recites several examples of the invention, no recycle ratio appears therein. And the claims in the application not only are devoid of any reference to a recycle ratio but also do not even mention the recycle step.

Claims 5, 9-21 inclusive of the '258 patent deal with fast settling by forming an emulsion where the less viscous sulfuric acid forms a continuous phase.[15] According to the patent:

> "[T]he separation of the excess sulfonating agent from the sulfonic acid product is very rapid if there is formed an emulsion comprising as the continuous phase the sulfuric acid and having the more viscous sulfonic acid dispersed therein." '258, 3/67-71.

Claims 5, 13, 16, 17, 18, 20, and 21 define the invention as a process containing the critical step of forming, establishing or maintaining the emulsion having as the continuous phase at least 22% by volume of less than 86% strength sulfuric acid. And claims 15-17 similarly recite the step of forming an emulsion and also contain the step of initiating or spontaneously forming it by providing at least 35% by

15. An analogous situation would be particles of oil mixed in water. If the water is the continuous phase—that is, particles of oil mixed in the water rather than particles of water mixed in the more viscous oil—then the oil is able to rise through the water (or the converse, the water is able to settle out of the oil) thus forming a layered system of oil and water. See also note 1.

volume of diluted excess sulfonating agent of less than 86% strength sulfuric acid.

The formation and maintenance of the emulsion are described in the '258 patent as follows:

> "[I]nitiating of the inversion step can be brought about if the minimum volume of the excess sulfonating agent expressed as less than 86% strength sulfuric acid is at least 35% by volume. And, the maintaining of the inverted emulsion can be realized if the excess sulfonating agent in the dilution step is at least 22% by volume, expressed as less than 86% strength sulfuric acid:" '258, 8/6-12.

In comparison, the parent application's teaching regarding fast settling was as follows:

> "At this stage of the process, in order to secure a rapid separation of the reaction solution [sulfonic acid with sulfuric acid dissolved therein] into a first component comprising the excess sulfonating agent [sulfuric acid], it is necessary to agitate or mix the reaction solution with a partially separated aqueous reaction solution [reaction solution diluted with water] having discreet droplets or nuclei of a first component comprising the product [sulfonic acid] and discreet droplets or nuclei of a second component comprising the excess sulfonating agent [sulfuric acid]." DX 950A, p. 11, lines 18-25.

Two methods for achieving fast settling were disclosed in the parent application. These were a ten-minute shutdown of the plant and the use of a quiescent partially separated sample, both to seed the system. The application does not refer to the formation of, and then the inversion of, an emulsion to obtain fast settling. Instead, there was an admonition that an emulsion should not be formed because it would prevent rapid separation of the sulfuric acid from the product phase.

"[F]orm a mixture and not an emulsion as the for-

> mation of an emulsion out of these mixtures prevents the rapid separation into the two phases." DX 950A, p. 12, lines 11-13.

The file history of this parent application shows that the examiner rejected all of the original claims of the application in October of 1956. The claims were rejected as vague or as not defining the invention. In response to the Patent Office rejection, Chemithon filed a paper called an Amendment in March, 1957. It added new descriptions and new claims. This additional material described and claimed the formation of an emulsion with diluted sulfuric acid as the continuous phase. In addition it disclosed that the inverted emulsion invention could be achieved by recycling separated sulfuric acid from the bottom of the settling tank or by using high concentrations of sulfonating agent for automatic initiation of the emulsion. And a new example of the practice of the invention using the recycle of separated acid was included.

In the remarks accompanying the proposed amendment Chemithon explained that they found it to be "very important" that the recycle rate of the sulfonation system in the first step of the process be high and that fast settling required an inverted emulsion with a continuous phase of sulfuric acid and that the prior art cited by the Patent Office did not teach the alleged invention because Chemithon had found that they could achieve fast settling "by forming an emulsion comprising the sulfuric acid as the continuous phase."

In response to the Amendment, the Patent Office again rejected all of the claims on February 24, 1958. The examiner directed Chemithon to cancel the new matter:

> "Applicants are required to cancel the various additions to the disclosure, since these constitute new matter."

The rejection of the Amendment on the basis it contained new matter was pursuant to the statutory prohibition that

> "No amendment shall introduce new matter into the disclosure of the invention." 35 U. S. C. § 132

In the interim, Chemithon filed its CIP application on June 11, 1957, which included the material which the Patent Office later refused by way of amendment to the parent application.

Chemithon contends that even though the parent application, unlike the '258 patent, does not contain any express disclosure of a minimum recycle ratio, or any ratio, the claims of the '258 which have such a ratio would read on and find support in a disclosure in the parent application of *any* recycle ratio greater than 15:1. At the same time, it is argued that, contrary to the disclosure of the '258 patent, the minimum recycle ratio is not "critical" nor is it part of the invention as disclosed and claimed in the patent.

With respect to the first contention, the parent application does contain some data concerning the pumps used in the process, but there is no information given relating to the pressure drop through the line. Professor Morton testified, without contradiction, that the absence of such data made it impossible to calculate actual recycle ratios from the parent application. When certain data was assumed—for example, the viscosity of the mix and the volume which the pump was pumping per minute—then ratios were calculated from 40:1 to 100:1. But the assumptions made were not gleaned from the face of the patent.

Even if it were assumed, as argued by Chemithon, that one skilled in the art would be able to make these assumptions on the basis of the information given in the application and on the basis of general engineering skill—for

example, assuming that a skilled engineer would always provide pump capacity 50% to 100% in excess of the required flow rate for the process so that the pump capacity given in the application could be used to determine the flow rate in the examples in the application to calculate the recycle ratio—this still does not point to any *minimum* ratio as a critical limit. In short, the parent application treated the limits of the recycle ratio as not a part of the invention. *Cf. Girdler Corporation v. E. I. DuPont De Nemours & Co.*, 59 F. Supp. 583; 587 (D. Del. 1945).

With regards to the second contention, namely that the minimum recycle ratio is not a part of the invention as disclosed and claimed in the '258 patent, Chemithon asserts that the basic invention of the patent is

1. The single-phase sulfonation reaction of claims 1-4 and 6-8; and
2. The fast settling method of claims 5 and 9-21.

Chemithon contends that the essential conditions for the above are the violent mixing of the reactant and the reaction material without prior contact of the materials prior to their introduction into the pump, and just enough recycled sulfonic acid to produce a solution. Thus, Chemithon states, if these conditions are provided for, all the other conditions, the ratio of the recycled material, temperatures, etc., were critical only in the sense that the very best color and product would not be produced without attention to them. It is stated by Chemithon that

> "It is not our contention that, once the concept of a single phase or solution reaction had been taught, the determination of the desired recycle ratio . . . was outside the skill of the ordinary chemical engineer:" Plaintiff's brief, p. 5-6.

Initially it should be noted that there are several reasons for providing for the recycle step in the process, and both parties have subscribed to these reasons. They are:

1. To avoid having too much unreacted material carried out of the system;
2. To put enough cooling effect into the reaction system;
3. To provide proportionately greater old material to new material that there will not be local overheating; and
4. To provide intimate contacting of the raw materials to maintain a single-phase solution.[16]

Of these four reasons listed, cooling and the prevention of local overheating are most important in respect to the color of the product, which, as noted earlier, is a very important consideration in the making of household detergents.

Chemithon's contention that the invention with respect to the recycle was the mere providing of the step with an indication that it must be high in ratio so as to effect the single-phase solution ignores the clear reference in the patent that one of the objects of the patent was to "provide a process for making a high active sulfonate detergent *having favorable color characteristics*", '258, 4/9-11. [Emphasis supplied.] In addition, it should be noted that optimum color was one of the arguments advanced by Chemithon in the Patent Office to distinguish its invention over the prior art.[17] Thus, in the Patent Office, the use of the right recycle ratio with its corresponding effect on avoidance of carbonization, degradation, and overheating was an indispensible feature of the invention disclosed. And there

16. R. 2734-2737.

17. DX 949, p. 91.

is no evidence that one skilled in the art would know, without experimentation, that the recycle ratio must necessarily be greater than 15:1.

The '258 patent is very specific in delineating several "critical points" which must be closely regulated in order to assure that the product is not carbonized and degraded. One such point is "the ratio of the diluent or recycled solution to the reactants in the reaction system." '258, 5/29-31.

Not only is the recycle ratio stated in express terms as being "critical" but it is so described in the patent. Thus, not only does the patent specify that the "recycling solution should be a minimum of 15 times the rate of feed (15:1)", '258, 6/19-21, but that "[i]n actual practice this ratio is greater than 15 to 1 so as to assure a heat sink for the heat of reaction and thereby prevent overheating and burning of the product." '258, 6/24-27.

We have this situation then: the patent teaches that there is no upper limit of recycle which is critical, but that a certain minimum, 15:1, is a critical minimum. And it is not disputed that this minimum is based on chemical fact, cf. *Helene Curtis Industries* v. *Sales Affiliates*, 233 F. 2d 148, 154 (2d Cir. 1956), namely that below that limit the product tends to become discolored or degraded.

That there is no disclosure of criticality of the recycle ratio in the parent application is evidenced not only by the fact that a specific ratio is not expressly denominated as such, but that the application is devoid of any teaching as to limits of the recycle. This absence is explained by the inventor's own testimony. Brooks testified that the color data from which the recycle ratio was derived came from samples from runs made by Chemithon on January 16, 1956. The color analyses of these samples were made by California Research on January 31, 1956, one day after the

Patent Office received the parent application and such analyses were mailed to Chemithon with a letter dated March, 1956.

Thus, in Chemithon's own evidence it is shown that the inventor had not conceived of the fact of criticality of a recycle ratio at the time the parent application was filed and that in order to ascertain the limits of the ratio experimentation and analyses were required. Not until the filing of the CIP application was there a disclosure of this information, this element of the invention, and thus those claims which include the minimum recycle ratio of 15:1 find support only in the disclosures of the CIP application, filed June 11, 1957.

With regards to the fast-settling claims of the '258 patent, Chemithon contends that those claims which refer to sulfuric acid as the continuous phase of the emulsion, which acid is at least 22% by volume of the mixture, find support in a disclosure in the parent application of a volume greater than 22%. And, Chemithon maintains that volumes in the range of 25%-29% have been calculated from the information given in the parent application. This latter fact is not disputed.

The parent application does not specify forming an emulsion in which the sulfuric acid is the continuous phase, but Chemithon argues that if the given processing instructions are followed, then inherently a rapidly settling two-phased system, with sulfuric acid as the continuous phase, results. And, thus, since the disclosure is inherent in the disclosure of the application, then those claims of the '258 which recite such a step find support in the parent application.

Chemithon explains that when the parent application warned against the formation of an emulsion,[18] what is

18. See page 15, *infra*.

really meant is that stable emulsions, which are difficult to settle, must be avoided. Accordingly, it is urged that the application was teaching the formation of a rapidly settling two-phase liquid system, and this is what the '258 patent calls a rapidly settling emulsion. Without doubt Chemithon incorrectly hypothesized the principles at work in the invention. In fact, that Chemithon was unaware of the relevant principle is specifically stated in the application. However, it should be clearly pointed out that it is unimportant that an inventor does not know the theory or principle by which his invention works. "An inventor is only bound to show how his invention works, not why." 4 Deller's Walker on Patents § 238 (2d ed. 1965). So, Chemithon contends that since two ways of fast settling were disclosed in the parent application, and these two ways inherently involved the formation of an emulsion with sulfuric acid as the continuous phase, and since all the claims regarding fast settling involve the same system, then the generic claims of the '258 relating to fast settling find their support in the parent application.

This court is unconvinced by the argument that the formation of an emulsion comprising certain necessary elements is but a mere theoretical explanation of the principles or mechanism underlying the invention. It is the invention itself. The heart of the rapid separation invention over the prior art, according to the '258 patent, is the formation of an inverted emulsion with sulfuric acid as the continuous phase:

> "The diluted reaction solution normally forms an emulsion having as a continuous phase the sulfonic acid product and dispersed therein the excess sulfonating agent." '258, 6/75-7/2.
>
> "[T]he separation of the excess sulfonating agent from the sulfonic acid product is very rapid if there is formed an emulsion comprising as the continuous

phase the sulfuric acid and having the more viscous sulfonic acid dispersed therein. . . . Employing our technique, separation may be made in a few minutes in place of hours." '258, 3/67-73.

"[Our] inverted emulsion comprises a continuous phase of the excess sulfonating agent and has dispersed therein droplets of the product. The inverted emulsion, in comparison with the emulsion comprising the product as the continuous phase with excess sulfonating agent dispersed therein, is not very viscous. Therefore, this inverted emulsion rapidly separates into the product and the excess sulfonating agent." '258, 7/18-26.

The point is further illustrated by the description in the patent as to how to achieve such an inverted emulsion, and also by claims 5, 9-14, and 19-21 in the patent which claim it as such regardless of how achieved. The '258 patent teaches four methods for achieving the inverted emulsion. All four methods are said to form an emulsion with sulfuric acid as the continuous phase. However, the patent denominates such four methods as "main" methods and states the invention is not restricted thereto. '258, 7/30 and 16/58-65.

There are two principles of controlling force with respect to Chemithon's contentions set out above. First, by describing in an application a process which inherently performs a function, or operates according to a theory, a patentee necessarily discloses that function or theory. *Technicon Instruments Corp., supra*, at 640-641. But, inherencies cannot be established by probabilities. Rather the evidence must show that the limitation or characterization is necessarily and inevitably inherent in the practice of the invention. *Interchemical Corporation* v. *Watson*, 145 F. Supp. 179, 182 (D. D. C. 1956), *aff'd* 251 F. 2d 390 (D. C. Cir. 1958). Second, in order for a patentee to

be entitled to the benefit of the filing date of the earlier application, the earlier application must be in conformity with 35 U. S. C. § 112.

35 U. S. C. § 120 provides as follows:

> "An application for patent for an invention *disclosed in the manner provided by the first paragraph of section 112 of this title* in an application previously filed in the United States by the same inventor shall have the same effect, as to such invention, as though filed on the date of the prior application . . . ." [Emphasis supplied.]

35 U. S. C. § 112 provides as follows:

> "The specification shall contain a written description of the invention, and of the manner and process of making and using it, *in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.*" [Em. Supp.]

With regard to inherency, this determination obviously must be made by the court with the help of those expert in the particular relevant field. *Interchemical Corp., supra*, at 251 F. 2d 391. This court concurs in the view expressed by Professor Andrews, a physical chemist testifying on behalf of P&G, that the parent application is antithetical to the '258 patent.[19] The parent application taught the formation of a mixture, and not an emulsion. And, as explained by Professor Andrews, it is a general rule that components of mixtures are more easily and rapidly separated than those of an emulsion. Chemithon would have this court extend the doctrine of inherency to include this case where the language of the disclosure in the parent application negates the very feature that is now claimed

19. R. 3388.

to be inherent in it. *Cf. Power Patents Co.* v. *Coe*, 110 F. 2d 550, 551 (D. C. Cir. 1940). Such an extension is unwarranted here.

This court notes, however, that it has not been disputed that if the conditions disclosed in the two examples of fast settling in the parent application are followed, there will usually occur a rapidly settling two-phase system in which the sulfuric acid is the continuous phase. And there is sufficient data given which will give a volume of the sulfuric acid in the continuous phase greater than 22% by volume. However, nowhere in the parent application is there a disclosure that this inversion results necessarily whenever the continuous phase of sulfuric acid is 35% by volume and continues to fast settle provided the volume remains at 22%. These limits are the heart of the fast-settling invention, for without a system with sufuric acid being present within these critical limits, no fast settling can occur or remain. And this is clearly pointed out and taught in the '258 patent. '258, 8/6-12. These peculiarities which characterize the invention were not disclosed in the parent application. Volume ratio as a controlling factor for the formation of an emulsion is neither directly nor by implication referred to or taught. There is no disclosure patent or inherent regarding the critical volume limits.

In addition, with respect to the requirements of 35 U. S. C. § 112, the important point is not that the description of the parent application may have been inaccurate but that it was so vague, unclear and imprecise that the claims of the '258 relating to fast settling cannot relate back to it. *Larsen Products Corp.* v. *Perfect Paint Products, Inc.*, 191 F. Supp. 303, 316 (D. Md. 1961). Chemithon's original disclosure depended upon the avoidance of an emulsion and the formation of a mixture, as already pointed out. In fact, the prior art clearly taught that upon

the addition of water in the dilution stage to the material coming from the sulfonator, an emulsion was formed and that the sulfuric acid so diluted was able to settle out of the viscous sulfonic acid by force of gravity.[20] This avoidance of the emulsion was emphasized in the parent application and was the point upon which the invention of the parent application depended, and upon which the prior art was distinguished. Now Chemithon admits that the examples provided in that application were inherently antithetical to the express teachings of the application that a mixture, rather than an emulsion was to be formed and inverted. In such a situation, the public does not know what the invention is, *Schriber-Schroth Co.* v. *Cleveland Trust Co.*, 305 U. S. 47, 58 (1938), and the disclosure contradicts itself and furnishes no guide to the art. *Grasselli Chemical Co.* v. *National Aniline & Chemical Co.*, 26 F. 2d 305, 307-08 (2d Cir. 1928); See also, 4 Deller's Walker on Patents, § 236. Even assuming that the disclosures of the parent application hinted at the characteristics of the fast-settling invention, still the statutory requirements have not been met.

When Chemithon attempted to amend the parent application by incorporating disclosures relating to the ratio of the recycle and by disclosing the invention of fast settling as finally appeared in the '258 patent, it attempted to add material not disclosed in the parent application. This was the determination of the Patent Office Hearing Examiner, and it is entitled to great weight. *Helms Products* v. *Lake Shore Manufacturing Co.*, 277 F. 2d 677, 679 (7th Cir. 1955). And this court concurs in that finding, being of the opinion that the effective filing date for the fast-settling claims as well as those claims which recited the 15:1 recycle ratio is the date of the CIP application, June 11, 1957.

20. See note 1.

In summary, claims 3, 5, and 7-21 inclusive are not entitled to the benefit of the filing date of the parent application, because the critical minimum recycle ratio and generic inverted emulsion and the sulfuric acid volume and dilution limits were disclosed for the first time in the CIP application of June 1957 from which the '258 patent issued.

PUBLIC USE.

Before discussing whether P&G's uses were "public", two doctrines should be differentiated. In *Metallizing Engineer Co.* v. *Kenyon Bearing & A. P. Co.*, 153 F. 2d 516, 520 (2d Cir. 1946), *cert. denied*, 328 U. S. 840 (1946), Judge Hand distinguished between

> "(1) The effect upon his right to a patent of the inventor's competitive exploitation of his machine or of his process; (2) the contribution which a prior use by another person makes to the art."

As to the former, since the policy and end of the patent law is "to promote the progress of science and the useful arts", Constitution, Art. 1, Sec. 8, one who withholds his invention from the public with a view to applying it indefinitely for his own exclusive benefit will not be aided. In other words:

> "The patent law limits the grant of a patent to a term of seventeen years. . . . If an inventor postpones his application for a patent, profiting by his invention in the meantime, in order to extend the time of his monopoly beyond the period provided for by the patent law, it is clear that it is not within the policy of patent legislation to aid him in carrying out this purpose by granting him a patent. . . ." 31 Har. L. Rev. 1033, 1034 (1917).

The distinction, consequently, is that whereas the mere commercial exploitation of an invention by the inventor may bar him from obtaining a valid patent thereon, be-

cause he has forfeited his rights to favor or protection, *Kendall* v. *Winsor*, 62 U. S. 322, 327-328 (1859), the exploitation by a third party must be "public" to raise the bar.

With respect to this latter doctrine, originally the statute provided that a bar to a patent would arise only if the public use was "with the applicant's consent or allowance prior to the application". Act of July 4, 1836, Sec. 7, 5 Stat. 117, 119; *Electric Storage Battery Co.* v. *Shimadzu*, 307 U. S. 5, n. 29 (1939). Thus, it was originally open to argument that the statute merely meant to confine 'public uses' to the prospective patentee and to be evidence of abandonment . . . ." *Gillman* v. *Stern*, 114 F. 2d 28, 31 (2d Cir. 1940). The Act of March 3, 1839, Sec. 7, 5 Stat. 353, 354, altered the statute and was construed to raise a bar when there is a public prior use regardless of the consent by the patentee. *Electric Storage Battery*, *supra*, n. 30, 19. And when the statute was so changed the courts adopted the definition of such use as was formulated when only the use with the consent of the patentee was a bar. *Electric Storage Battery Co.*, *supra*, at 19.

In assessing the character of P&G's uses, the nature of the inventions in suit should not be lightly passed over. It is important to note again that these process inventions, like all similar inventions, involve certain "techniques". Here they relate to the injection of feed streams in a zone of vigorous mixing, absence of pre-mixing, and other similar manipulative steps. Consequently, it should be obvious that these techniques, carried on in closed vessels and with complex equipment, are difficult, if not impossible, to discern from a viewing of the apparatus utilized. In other words, the minute details of the process, which essentially comprise the inventions, cannot be "seen" by looking at the equipment.

This is a fundamental element in Chemithon's contention

that the processes were concealed; for it is argued that while P&G utilized these processes in its commercial operations, they nevertheless could not be known without someone describing them. And, in this regard, Chemithon has maintained that P&G formulated and maintained a policy to suppress and conceal the processes from the public, which policy was successful.'

It has always been the law that very little is needed to demonstrate "public use". For example, in *Egbert v. Lippman*, 104 U. S. 333 (1881), an inventor of corset steels made a pair for an intimate friend who wore them for a considerable period of time. The court's finding of public use is particularly apt in this case. There the court said:

> "[W]hether the use of an invention is public or private, does not necessarily depend upon the number of persons to whom the use is known. If an inventor, having made his device, gives or sells it to another . . . without limitation or restriction, or injunction of secrecy, and it is so used, such use is public. . . .
>
> "[S]ome inventions are by their very character only capable of being used where they cannot be seen or observed by the public eye. . . . Nevertheless, if its inventor sells a machine of which his invention forms a part, and allows it to be used without restriction of any kind, the use is a public one . . . ."

Correspondingly, in assessing the allegation that P&G's commercial practices were not public but concealed and hidden, the issue of "concealment" will be determined within narrow limits. *E. W. Bliss Co. v. Southern Can Co.*, 251 Fed. 903, 908 (D. Md. 1918). In the *Bliss* case the court noted that uses which are clearly anticipations and which have been in continuous use will invalidate a patent unless (1) the party "had deliberately made up his mind to practice his invention secretly" and (2) "there was proved to demonstration that his efforts to keep the invention secret had been absolutely successful."

There is very little dispute as to the facts regarding P&G's practice of these processes. The area of disagreement revolves around whether or not these facts constitute "public use" under the patent law.

It is uncontroverted that P&G did not physically isolate the areas in its several plants where all these processes were utilized. There were no guards stationed at the points of entry to the processing areas, of which there were three in the Baltimore plant. No screens were used to hide the equipment; "not authorized" signs were not placed on the doors; employees were not screened before they were permitted to come and go without restriction.

During the period 1950 to 1960, billions of pounds of synthetic detergents were produced by P&G in from one to ten factories. During this period, in the Baltimore plant alone, which produced synthetic detergents including Tide, Dreft, Cheer, Oxydol, Acé, Export Tide, and Lavasol, there were over 400 employees. In each of the plants there were scores of engineers and technical people who were thoroughly familiar with the processes.[21] And, in addition to this group, there were in each factory members of management, operators, and other personnel who carried out the operations of the processes, numbering in the order of fifty in each plant, so that in the United States as a whole, at any particular time, there would be several hundred people familiar with the processes covered by the two patents in suit.[22] And over the years this number would probably approach the thousands due to natural attrition. There is no evidence that any employee was required to undergo any special screening process before he was permitted to have contact with these processes or with process information.

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21. R. 999.

22. R. 999-1000; 1272.

Furthermore, none of these employees, even those intimately connected with the processes, not even those employees who had developed the processes or process refinements for P&G, were obliged to keep these processes secret.[23] Nor were they required to execute any agreements whereby they obligated themselves not to disclose to outsiders the information obtained during the course of their employment with P&G.

The processes, like all chemical processes, were practiced by P&G by utilizing pumps, heat exchangers, valves, and other apparatus so arranged and so connected as to enable the materials used to be treated and to become a finished product. It is not disputed that P&G's practices constituted the "ordinary practice" of the process in the sense that the apparatus used had no more concealment than was inseperable from any legitimate use of them.

Neverthelesss, Chemithon has contended that P&G did indeed implement a general policy of concealment with respect to these inventions. Proof on this point of company policy rests primarily upon a memorandum prepared by James Ewell of P&G and sent to all the factories of P&G.[24] The purport of this memo is to delineate the permissible degrees of exposure to the processes in suit and to P&G information in general with respect to particular categories of individuals. Chemithon has maintained that this memo documents the long-practiced and widely understood policy of P&G regarding concealment.

Accepting Chemithon's characterization of this memo, it amply corroborates P&G's testimonial evidence that as regards to full-time employees there never was during the relevant time period any policy of limiting the dissemination of information to them or restricting their exposure

23. *Ibid.*

24. See note 26, *infra.*

to the processes. The circumscribing of information or exposure to be given full-time employees is conspicuous by its absence. There is no convincing evidence that P&G had a policy to suppress and conceal these inventions from any of its employees.[25]

As pointed out by the court in *Electric Storage Battery Co.*, where the court held two process patents invalid because of prior public use by the defendant, the public character of a use is established if:

1. The process was practiced in its ordinary way in a factory for commercial purposes; and
2. When it is well known to employees in the plant and no effort is made to conceal it from anyone having a legitimate interest in understanding it.

It is true that under the particular facts of this case it cannot be said that *all* the employees of P&G knew the inventions. But *actual* knowledge of the invention need not be demonstrated in order for a use to be "public". Chemithon has adequately stated the applicable law. A process becomes publicly known when sufficient information is available "to enable members of the public to learn the process, if they so chose." Plaintiff's reply brief, p. 9. As stated by the court in *Perkins* v. *Nashua Card & Glazed Paper Co.*, 2 Fed. 451 (C. C. N. H. 1880):

> "It has always been held that when the public have had means of knowledge they have had knowledge of the invention."

Here P&G has adequately demonstrated that not only did employees of the company, in general, have *access* to knowledge but that numerous employees had actual knowl-

25. P&G's procedure to keep something "secret" involved keeping separate files on the matter, making physical segregation, and screening the people that are involved. R. 1028. None of these precautions were taken after 1951 with reference to processes for making synthetic detergents. R. 1545-46, 1001, 1272-73.

edge. This latter group included plant engineers, members of management, operators in the various plants, et cetera, as well as those employees who were responsible for maintaining production standards, recognizing and solving specific problems experienced at the several plants, and those responsible for developing new and better processes. As pointed out in *Cooper* v. *Robertson*, 38 F. 2d 852, 861 (D. Md. 1930):

> "Nor does the question, whether the use of an invention is public or private, depend upon the number of times it is used, or upon the number of persons to whom its use is known. If an inventor, having made his device or design, gives or sells it to another without restriction for use by him or injunction of secrecy, and it is so used, such use is public, even though it, and knowledge of it, may be *confined to one person.* We further recognize that the use may be public, although concealed by the nature of the invention itself; and, further; that the use of a single specimen, even in a factory and in the presence only of the *employees,* may be public." [Emphasis supplied.]

Being unable to refute this evidence relating to P&G's employees' access to the pertinent details of the processes and P&G's employees' actual knowledge of the processes, Chemithon has urged that while P&G did not screen employees and did not extract from them any express agreements on non-divulgence of information, employees tacitly promised to respect confidences and tacitly promised not to disclose information to outsiders. Supposedly evidencing this tacit agreement is the testimony of Victor Mills of P&G. Chemithon alleges that

> "Victor Mills, until his retirement a key employee of P&G, testified that while no secrecy arrangements were entered into with its employees, P&G relied upon the discretion of the employees who understood that they were not to disclose company information." Plaintiff's brief, p. 30.

As explained by Mr. Mills in his deposition, the company information referred to relates to information pertaining to plant capacities, production rates, et cetera. As will be pointed out more particularly below, P&G did indeed have information which it designedly protected against public disclosure, including this information referred to by Mr. Mills. But none of these "secrets" pertain to the existence and the operation of these processes. Some of the information was mere economic data and ultimate product formulations. This is not enough to demonstrate suppression and concealment of the processes. But, even if it were assumed that this large number of employees did tacitly promise to respect confidences entrusted to them and information which they might acquire during their employment, this alone is not sufficient to show that the processes were not in public use. *Standard Automatic Machine Co. v. Karl Kiefer Machine Co.*, 18 F. 2d 326 (S. D. N. Y. 1925), *aff'd* 18 F. 2d 331 (2d Cir. 1927).

The law is clear that a use is "public" where the practice of the invention is carried out in the usual course of producing goods for commercial purposes, *Smith & Griggs Mfg. Co. v. Sprague*, 123 U. S. 249, 254 (1887), *American Stainless Steel Co. v. Rustless Iron Corp.*, 71 F. 2d 404, 407 (4 Cir. 1934), *Barie v. Superior Tanning Co.*, 182 F. 2d 724, 729 (7 Cir. 1950), *Thompson v. American Tobacco Co.*, 174 F. 2d 773, 777-778 (4 Cir. 1949), *Paraffine Companies v. McEverlast, Inc.*, 84 F. 2d 335, 340 (9 Cir. 1936), *Atlas v. Eastern Airlines, Inc.*, 311 F. 2d 156, 160 (1st Cir. 1962); where there is no deliberate concealment of the invention, even though the invention may be buried in a machine and not visible, *Hall v. MacNeale*, 107 U. S. 90 (1883), *Egbert v. Lippman, supra*, *Watson v. Allen*, 254 F. 2d 342, 345 (D. C. Cir. 1958), *Koehring Company v. National Automatic Tool Company*, 362 F. 2d 100, 104 (7th Cir. 1966);

and where it is capable of being known only by employees, *A. Schrader's Sons, Inc.* v. *Wein Sales Corp.*, 9 F. 2d 306, 308 (2d Cir. 1925) and cases cited therein.

However, the evidence introduced by P&G on the character of its uses does not rest upon the bare essentials demanded by the law to establish "public use". The record is replete with evidence, truly massive in its scope and quantity, which this court feels it must comment on, for it clearly establishes that P&G permitted and encouraged exposure and access to these processes by many who were not full-time employees of the company or who were not directly or indirectly related to these activities within P&G. Any doubt as to P&G's policy regarding disclosures vis-a-vis these processes is expelled by the fact that it took *affirmative* steps to make known aspects of its activities relating to synthetic detergent-making to the public at large.

P&G's conduct, beginning in the 1950's and onwards, was consistently antithetical to any supposed policy of suppression, concealment, or secrecy. Reference is made at this point to the memorandum of Mr. Ewell set out in the margin below.[26] The category of individuals designated

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26. PX 159 (J. M. Ewell's memorandum of July 29, 1955):

"Questions frequently arise on the degree of exposure permitted on plant and processes to various individuals. It might be helpful to put down a statement covering instances which might normally be expected and the limitations to be observed in each case. Would you, therefore, use the following as a guide.

"1. Summer college trainees

"Problems in Making Synthetic Granules may be assigned except problems involving formula card information. Problems in Fatty Alcohol should be limited to oil receiving, refining and bleaching, gas plant, foots [sic], acidulation. Problems in ester making, hydrogenation, sodium reduction and distillation are not permissible. Problems should not be assigned in Low Temperature Stabilization or in Continuous Hardening (either edible or in-

in paragraph one refers to those students employed by P&G during the summer months in a training program, which program continued uninterrupted from about 1950 to 1960. These trainees, who would return to school after their brief training experience with P&G and who were not committed to the employ of P&G after their graduation from school, were assigned to work on a variety of current

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edible). Problems in the Hydrolyzer not involving continuous hardening are permissible.

"2. Co-op Students

"Problems in Making Synthetic Granules, Fatty Alcohol, Low Temperature Stabilization, or Continuous Hardening should not be assigned to co-ops. Problems in the Hydrolyzer not involving continuous hardening are permissible. When a co-op reaches his last work period and it appears that we will offer permanent employment to the man, the same policy for problem assignments should be used as for summer college trainees.

"3. Faculty Members Visiting Us on Our Invitation

"Where the visitor's field of interest requires, we should feel free in taking him through any department in the plant. Care must be exercised, however, not to divulge any formulas or processing limits. Discussion should be kept as general as possible. To assure this, it is recommended that the plant superintendents, the chemical supervisor or the supervisor of the departments involved act as guide so as to properly control the discussions. Ester making in Fatty Alcohol is not to be mentioned.

"4. Field trips by senior engineering classes should in general be handled the same as the faculty members except that we should be more reticient [sic] about taking them into processing departments and be more general in any discussion with them.

"5. Prospective Employees on a One Day Visit from College to the Factory

"Making Synthetic Granules may be included. In exceptional instances, if we are strongly interested in the student and he needs to be impressed with the technical opportunities we offer, Fatty Alcohol, Low Temperature Stabilization and Continuous Hardening may be included without any detailed discussion.

"6. Local business men's clubs, chapters of the American Chemical Society, etc. should be restricted to the regular visitors' route.

"As new processes are added, they should be considered confidential until specific information to the contrary is received."

problems in the several plants.[27] It is clear that with respect to this group there was no restriction as to their involvement with the relevant aspects of synthetic granules, with one exception relating to formula card information. That P&G had a policy not to disclose formula card information is not disputed.[28] But the ultimate product formulation contained in the formula card is not particularly relevant to the issue of the character of the use of the *processes*. And this fact is not controverted by Chemithon. There is not a scintilla of evidence which would indicate that with respect to this group there was any attempt to withhold relevant information or to restrict their familiarizing themselves with P&G's detergent processes.[29]

In addition the memorandum does state that "[p]roblems in Making Synthetic Granules . . . should not be assigned to co-ops [students]", but it places no other limitation upon this group. It is noteworthy, however, that even co-ops could be assigned to this area "when it appears that we [P&G] will offer permanent employment to the man."

In this same period, 1950 to 1960, P&G conducted several meetings for P&G personnel which included employees mainly engaged in activities unrelated to the processes

27. One trainee, Ed Steinhoff, at the time of his summer employment at P&G a student at Purdue University, and now a patent attorney not employed by P&G, illustrates the practice of P&G to assign these personnel to current problems in the synthetic detergent aspect of the company's operations. In the summer of 1955 when Mr. Hartman was working on dilution and fast settling that led to the installation of the high-active process in the Baltimore plant, Mr. Steinhoff assisted him in his work and was not subjected to any secrecy agreement nor was he obliged not to divulge what he had gleaned from his employment at P&G.

28. R. 1277, 1766.

29. In fact, as a part of their background information a series of books called "Process Descriptions" containing operation procedures and principles of operation along with a description was made available to the trainees. R. 1765.

under discussion. At these meetings the processes were presented in informative talks by P&G people experienced in synthetic detergent-making. Mr. Ewell's memorandum contains no reference to this group; thus, at the very least, there is an inference raised that there was no official policy restricting the type of information which could be imparted, either with respect to the quantity or the quality of the information, to this group. The various meetings and the details of what was contained in the lectures and the discussions need not be set out here, for Chemithon has not denied that the meetings and the lectures occurred and that all the processes were presented in one way or another at various times. Its major attack is that not one of these presentations contain a complete disclosure, and some of the talks given and slides used contain omissions and even errors. The court feels, however, that this is not of such critical importance especially when it is pointed out that these particular audiences were comprised of personnel of the company, those from the chemical engineering group, chemical supervisors, engineers, and those in manufacturing, and the evidence warrants a finding that this group, as those directly engaged in the making of synthetic detergents, at least had access to the details which Chemithon maintains were not presented.[30]

That the talks given were general in nature—probably so because of time limitations and because the audience was not directly related to this phase of the company's operations—does not detract in the least from the fact that there were disclosures made, without any restriction put upon the recipients, all contrary to any policy of concealment.

The argument that P&G's disclosures were not full and detailed enough is made by Chemithon with respect to the

30. See page 30, *et seq.*

evidence of numerous examples of P&G employees giving lectures to college students,[31] usually engineering and chemical engineering students, as well as the numerous examples of tours given through the various factories,[32] presentations to college professors and their students,[33] and publications in the trade journals.[34] This contention ignores the fact that a user or an inventor need not take *affirmative* steps to publicize his activities before the uses can be "public". This point was aptly made by the court in *Rosaire v. Baroid Sales Division, National Lead Co.*, 218 F. 2d 72, 74-75 (5th Cir. 1955). There the court said:

> "With respect to the argument advanced by appellant that the lack of publication of Teplitz's work deprived an alleged infringer of the defense of prior use, we find no case which constrains us to hold that where such work was done openly and in the ordinary course of the activities of the employer, a large producing company in the oil industry, the statute is to be so modified by construction as to require some affirmative act to bring the work to the attention of the public at large.
>
> "While there is authority for the proposition that one of the basic principles underlying the patent laws

31. Beginning in 1955, P&G personnel gave lectures which concerned these processes at Yale University, Rice Institute of Technology, University of Illinois, Iowa State, University of Minnesota, Princeton University, University of Cincinnati, University of California, and Notre Dame University.

32. See for example DX 1409, a record of some of the groups that toured the Baltimore plant.

33. See, e.g., DX 1409, especially the record therein of visits by faculty and students from Virginia Polytechnic Institute, University of Maryland, University of Baltimore, Johns Hopkins University, and Goucher College.

34. David Whyte of P&G wrote a description of P&G's continuous sulfonation-sulfation process (PX 144) in Chemical and Engineering News. The article Detergents Continuously of January, 1959 (DX 984), is a disclosure of P&G's processes and especially of the process claimed in the '920 patent.

> is the enrichment of the art, and that a patent is given to encourage disclosure of inventions, no case we have found requires a holding that, under the circumstances that attended the work of Teplitz, the fact of public knowledge must be shown before it can be urged to invalidate a subsequent patent."

Paraphrasing the holding of the court in Rosaire, this court is constrained to hold that under circumstances of the present case—the ordinary use of chemical processes in commercial use in a large producing company in the detergent field without any indicia of concealment being employed—P&G is not required to show some affirmative act whereby it brought its work to the public in general to demonstrate its "public use" of the processes. However, P&G has offered ample proof of its affirmatively publicizing its activities, leading this court to find that P&G made no effort to conceal or suppress these processes from *anyone* having a legitimate interest in understanding them, a point the Supreme Court in *Electric Storage Battery* found to be highly probative.

Chemithon argues that P&G's attempt to publicize its activities and developments was only in reaction to work done by Chemithon, of which work P&G became increasingly aware as time went on. This contention, of course, ignores the fact that P&G commenced its program to acquaint "outsiders" with its processes by way of tours through its facilities, lectures, etcetera, at a time antedating Chemithon's entrance to the field. For example, as early as 1952, for its own self-interest, P&G indirectly recruited badly needed professional talent for its organization by inviting and demonstrating to members of the academic community, largely professors of engineering and chemical engineering, its proficiency in chemical engineering. At the dedication of its new laboratory facility, the Miami Valley Laboratory, in 1952, over 100 professors were in-

vited and attended and were presented with various lectures, seminars, and tours through the laboratory and the commercial plant in Cincinnati. This example is representative of all other presentations in later years in that the processes for making synthetic detergents was always a focal point of the presentation and no limitation was placed on the visitors, either with respect to what might be shown or with respect to the use made of the information learned. Mr. Ewell's memorandum does state that these presentations, to faculty and students alike, should be general in nature. But in this regard two points are noteworthy. First, it is undisputed that at no time did P&G refuse to answer questions asked by these highly skilled and knowledgeable visitors, P&G even providing in the normal tour schedule for a question-and-answer session when the plant engineer or someone of equivalent acquaintanceship and experience with synthetic granules would answer all questions posed by the visitors. Second, these groups were highly sophisticated and skilled people, peculiarly aware of and capable of appreciating the importance of what was shown and what was related. That important and relevant information was customarily given out in any presentation is demonstrated by the various exhibits of talks given, slides used, and the testimony of tour guides themselves. Even Chemithon tacitly concurs with this fact when it makes reference to a denial by P&G to a competitor's employee when the latter attempted to tour one of the factories in a standard tour given the "professional-type" visitor. Such conduct demonstrates not concealment as argued by Chemithon—although it does show a reluctance on P&G's part to enable its competitors to get an accurate picture of the size of its operations and to duplicate its activities—but rather by inference corroborates all the testimonial evidence and exhibits that very relevant information relating to these

processes could be obtained by touring the factories and by noting the facts revealed by the guides.

This court has carefully reviewed the evidence presented by Chemithon allegedly showing concealment of P&G's uses,[35] and is of the opinion that it does not evidence concealment of these processes and P&G's uses thereof, for these items relate, in the main, to P&G's attempt to withhold information regarding future plans of the company, rates of production, processing limits, exact costs of production, and formula card production, et cetera. It is admitted that this type of information was protected from public disclosure, but at the same time it cannot be contended that any of this information which P&G kept "secret" had any bearing on the character of its use of the *processes* but instead related to other factors such as economic considerations.

All the processes under discussion, those contained in the two patents in suit, were carried on in their usual way for the production of goods for commerce, known and capable of being known by employees of the company as well as countless outsiders, and there was no attempt to suppress or conceal them from anyone having a legitimate interest in them. This finding warrants a holding that P&G's uses, public in nature within the meaning of 35 U. S. C. § 102(b), invalidates the patents on these processes, Chemithon's '258 and '920 patents.

35. Chemithon lists the following facts, among others already referred to, as evidence of P&G's concealment of the processes: (1) Suppliers from whom equipment was purchased were purposely not given information about the process; (2) A description of the high-active process written by Mr. Robinette of the Engineering Division of P&G in 1955 is stamped "confidential"; (3) An internal memorandum from the Engineering Division to the Baltimore plant regarding start-up procedures admonished that the information should be kept in a "safe" place; (4) P&G's Process Monograph No. 7, entitled "Synthetic Detergents" dated 1954 describes the continuous sulfonation and the tandem process. It is stamped confidential on its cover.

This finding of invalidity of the two patents under the provisions of 35 U. S. C. § 102(b) makes unnecessary comment on the numerous other defenses raised by P&G which include: invalidity under 35 U. S. C. § 102(g); invalidity under 35 U. S. C. § 102(f) because Chemithon's Brooks brothers were not the inventors of the matter patented; invalidity under 35 U. S. C. § 103 because of prior art anticipations and obviousness; invalidity under 35 U. S. C. § 112 because of defective claiming and inoperativeness; and invalidity under 35 U. S. C. § 102(b) because of Chemithon's commercial exploitation of the '258 process.

TRADE SECRETS.

The three trade secrets allegedly misappropriated by P&G relate to sulfonation and dilution settling. The three secrets, as defined by Chemithon in the pretrial order, are

1. Avoidance of air in the sulfonation and dilution stages of the process to improve settling;
2. Cooling the diluted acid mix, in the dilution stage, to 120°-130° F. with a usual operating temperature of 122° F.; and
3. Introducing the diluted acid mix into the settling tank below the interface in the tank, i.e., into the lower layer.

The trade-secret issues arise out of a visit to Chemithon's plant in Seattle on April 10, 1957, by Bruce Strain of P&G. P&G had been invited some time earlier along with other leading soap manufacturers in this country, to view Chemithon's operations. This earlier invitation was not accepted, but in 1957 P&G did communicate with Chemithon its willingness to visit Chemithon's plant after Brooks of Chemithon had talked with David Whyte

of P&G of Chemithon's work with sulfonation and fast settling.

Strain visited Chemithon under the same conditions set for the other manufacturers, and these conditions are set out in a confidential disclosure agreement drafted by Chemithon and signed by both parties. The agreement is in evidence[36] and it provides that Chemithon would dis-

36. PX 100 (Letter addressed to The Procter & Gamble Company, 301 E. Sixth Street, Cincinnati 2, Ohio, from The Chemithon Corporation, 1520 Leary Way, Seattle 7, Washington):

"The Chemithon Corporation (hereinafter referred to as 'Chemithon') has a process for the continuous sulfonation of alkyl benzenes (hereinafter referred to as 'Said Process'). Chemithon has appointed Oronite Chemical Company (hereinafter referred to as 'Oronite') to act as its exclusive agent to introduce plants suitable for the practice of Said Process. The Procter & Gamble Company (hereinafter referred to as 'Procter') has expressed to Oronite a desire to evaluate Said Process. To make such evaluation possible it will be necessary for Chemithon to disclose to Procter certain technical information concerning Said Process (hereinafter referred to as 'Said Technical Information'). Chemithon is willing to furnish Procter Said Technical Information upon the terms and conditions set forth below and asks that Procter indicate acceptance of such terms and conditions in the space provided below.

"Procter agrees that (1) all Said Technical Information disclosed to Procter by Chemithon will be received and held in confidence by Procter; (2) that Procter will take such steps as may be reasonably necessary to prevent disclosure of Said Technical Information to others and will not disclose the same to others without Chemithon's written consent; (3) that Procter will not use Said Technical Information in commercial operation of Said Process without first having obtained Chemithon's written consent to such use.

"The commitments set forth in (1), (2), and (3) above shall not extend to any portions of Said Technical Information (a) which, prior to the receipt of the same from Chemithon, was, in fact, already known to Procter or was information generally available to the public; (b) which hereafter through no act on the part of Procter, becomes information generally available to the public; and (c) which corresponds in substance to information

close technical information concerning its processes for evaluation by P&G. Pending evaluation and for a total of ten years the agreement provided that P&G would not use the information in commercial operations without Chemithon's written consent. Also, the agreement provided that P&G's obligation would not extend to such portions of the technical information already known to P&G or was information generally available to the public.

P&G has contended that it had complied fully with the agreement, namely that Chemithon's trade secrets had not led to any changes in the then existing P&G commercial operations. P&G argued and presented evidence to show that the "secrets" were already known by it and constituted information generally available to the public.

The basic facts of P&G's operations are not in dispute, they being evidenced not only by testimony of P&G personnel but by drawings, standards, etcetera. Chemithon has not rebutted P&G's evidence of its practice of air-exclusion in all its systems, including its high active process involving acid settling.[37] Instead, Chemithon has argued that P&G knew only how to provide sufficient

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furnished to Procter by any third party having a bonafide right to do so.

"The commitments set forth in (1), (2), and (3) above shall in no event extend beyond ten years from the date of this agreement.

"The Chemithon Corporation
"By /s/ R. J. Brooks

"Accepted:
"The Procter & Gamble Company
"By /s/ .....
Vice-President in Charge of Research and Development
"Date April 5, 1957"

37. See pages 9-10, *infra*.

air-avoidance in order to prevent pump-related problems, such as pump cavitation. Thus, Chemithon posits that

> "Among other things that P&G learned in confidence from Chemithon in April, 1957, was that air had an adverse effect on settling. Before this, P&G knew only that air caused pump cavitation and other pump problems, and P&G's practices excluded sufficient air to avoid these problems. However, despite the fact that these other air-caused problems were under control in early 1957 (R. 1402-3), P&G was still having problems with its settling efficiency." Plaintiffs brief, p. 13.

To clear up a patent ambiguity it must be pointed out that Chemithon's secret of air-avoidance was really not concerned with the *amounts* of air or the *amount* of settling in the high-active process. In other words, Chemithon's secret was that the system should be *free* of gas such as air or else slow settling would result. Chemithon has contended that the *absence* of air is essential to obtain fast settling as opposed to slow settling.[38]

At the time of Strain's visit in 1957 Chemithon's method for excluding air from the system was the following, as testified by Brooks: venting of the system at start-up, the use of a closed system with a positive back pressure, and proper maintenance of pump seals. It is admitted that the maintenance of the pump seals is a common procedure in the art, one of ordinary engineering practice.[39] The other three methods used to exclude air were incorporated into Chemithon's '285 patent filed two months after Strain's visit. As pointed out earlier, P&G utilized all these methods specified in the patent prior to the filing for the application for the '258 patent.

Chemithon cannot point to any evidence which demon-

38. R. 191, 354-55, 360-61, 375-76.

39. R. 196-97, 339-41. See also DX 1309-10.

strates that P&G changed its equipment utilized in excluding air from its high-active processes after the Strain visit to Seattle. Indeed, the evidence shows that P&G neither changed the equipment used in the process nor the mode of operating the process. The evidence relied upon by Chemithon to substantiate the claim for misappropriation refers to some work done in the P&G laboratory, work which did not involve commercial use of any information received from Chemithon and work which did not lead to any changes in P&G's commercial operations.[40]

Other evidence relied upon consists of quotations from P&G documents relating to the investigation of a problem of marginal factory performance in the making of one product: high-active Duz. However, as more clearly set out below, this evidence is not relevant to the claim of appropriation of the air-avoidance trade secret.

P&G began its commercial manufacture of high-active products in Mexico in July, 1955, and in Baltimore in August, 1955. The products produced were Export, Tide, and Ace. P&G never experienced any difficulty with respect to the manufacture of these products. However, beginning in October, 1956, and continuing through December, 1957, the formula for the high-active product Duz, first produced in January, 1956, was changed to include a higher percentage of toluene sulfonic acid. It was this change in the composition of the product by providing for the higher percentage of toluene sulfonate that led to the

40. Howard Mills found that air leakage into the pilot plant system was occurring because of a defective seal on one of the sulfonation pumps. He had the defective seal repaired and determined the effect of air leakage on the efficiency of the settling obtained in the pilot plant. R. 1920-21, 2087-88, 2150-51, 2163, 2354-56. Under the terms of the agreement between P&G and Chemithon P&G was free to evaluate technical information received from Chemithon, the only prohibition being that P&G could not make commercial use of the information.

inability of the factories to meet formula-card requirements for that product. This was so because the sulfuric acid was more soluble in the toluene sulfonic acid and thus less of the sulfuric acid could be settled out. This problem prompted P&G's investigation of the factory operations, and led to an investigation of the settling operations of the Duz process. The investigation disclosed the existence of "bubbles" of gas in unpressurized samples of acid mix taken from the sulfonation, dilution and settling systems of the process. P&G denominates this activity as the "bubble investigation", a search for the cause of the mysterious bubbles which, it was believed, were the root of the factories' inability to meet formula-card requirements for Duz.

This investigation occurred around the time of Strain's visit to Seattle. And because of the concurrence of the visit with the "bubble investigation" Chemithon has theorized that it was Chemithon's imparting of the air-avoidance trade secret to Strain which enabled P&G to recognize and solve its "bubble" problem.

This theory, however, ignores certain pertinent facts. First, there is no evidence that P&G experienced this gas problem with any other of its high-active products other than the Duz product. The evidence points to the conclusion that the crux of the gas problem was the change in the Duz formula to a higher percentage of toluene sulfonic acid, which caused increased difficulty with settling out sufficient quantities of sulfuric acid—not a problem of slow-versus-fast settling. P&G never solved this problem with the Duz product. The other high-active products, not afflicted with a gas problem, continued to be produced after Strain's visit just as before.

What is singularly important, and which puts to rest any allegation of misappropriation of information regarding

air is the fact that P&G's problem with the formula squeeze of the Duz product involved matters with which Chemithon had no experience at the time of Strain's visit. Chemithon had no experience with the problems associated with toluene, until a time following Strain's visit. Therefore, Chemithon could not and did not disclose to Strain in April 1957, any information about the problem with the Duz product, which problem P&G never solved and which P&G eliminated only by discontinuing the formula entirely.

The court finds that P&G did not appropriate to itself, contrary to the agreement of the parties, a trade secret of air avoidance, let alone that P&G in any way could have profited by the air-avoidance information. The evidence leads to one conclusion: P&G knew and practiced air avoidance, as known by Chemithon, long before Strain's visit to Seattle.

That P&G's operations were not changed after Strain's visit is applicable not only to the item of air avoidance but also to the other two trade secrets asserted. Thus, the evidence shows that P&G routinely introduced the diluted acid mix in its high-active processes into the settling tank below the interface between the separated sulfuric acid and the sulfonic acid at a date prior to April 10, 1957.[41] The engineering drawings of the dilution stage used in the Mexico plant starting in July, 1955, show that P&G introduced the diluted acid mix into the settling tank below the interface.[42]

41. This technique of introducing the diluted acid mix below the interface is a practice which initially Chemithon said was really unnecessary for an effective fast-settling process.

42. DX 655, 655B. See also the drawing of the Mexico settling tank, DX 655A and the Overseas Standards, PX 88, 91, which prescribe the location of the interface and the entry point for the diluted mix. R. 1596-1606. P&G followed the same practice in its United States operations starting in 1955 at its Baltimore plant. The operator and the manager so testified. R. 1994-95, 2007, 2650-51. The practice was the same at the Port Ivory New York plant. DX 1520, PX 92.

Excluding references to pilot plant experiments, the evidence shows that in its commercial operations P&G practiced this technique almost two years before the Strain visit to Chemithon. Consequently, there can be no claim for appropriating what was already known by P&G.

Little need be said of the final trade secret alleged. The evidence shows that from the beginning in July, 1955, P&G had knowledge of and practiced the Chemithon temperature trade secret.

In Hartman's laboratory work in June, 1955, his dilution temperature was 120°-130° F.[43] The dilution temperature used during the Mexico start-up in 1955 was 122°-130° F.[44] When Hartman's process for acid layering was written up in the Process Standards of the company, the temperature was not permitted above 122° F.[45]

The record of P&G's domestic operations mirrors the initial work of Hartman as well as the Mexico operation, the first of P&G's settling facilities.[46]

The temperature trade secret, as the other two, was not new to P&G. Accordingly, there is no enforceable claim for its appropriation.

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43. DX 647, DX 500, R. 1529-33.

44. DX 499.

45. PX 88.

46. In its domestic operations the original temperature was 110° F. maximum in January, 1956 (PX 86). In June, 1956, before a new heat exchanger was installed, temperatures up to 130° F. were authorized (PX 89, DX 611), and in February, 1957, the Baltimore factory was authorized to operate at a range of 110°-120° F. (PX 93) (DX 316). Thus, in Baltimore, as well as in Mexico, P&G operated in the alleged trade secret range long before the Strain visit.

ATTORNEYS FEES.

P&G has requested this court to find that this case is exceptional within the provisions of 35 U. S. C. § 285 which provides that

"The court in exceptional cases may award reasonable attorney fees to the prevailing party."

This court has carefully reviewed the history of this litigation, including the allegations and claims asserted, the defenses raised, and the evidence introduced at trial. While this case involves close and difficult questions in general, and in certain respects is exceptional in character as noted earlier, primarily because of the stipulations of the parties regarding P&G's prior use and inventorship, there is no substance to P&G's contention that Chefnithon has acted unfairly, inequitably, or with "unclean" hands in the prosecution of this case or in its dealings with the Patent Office.

The exceptional case contemplated by the statute occurs where it would be grossly unjust to make the winning party bear its own attorneys' fees. Allowance of attorneys' fees should find support in a specific finding as to the exceptional circumstances justifying the award. *Binks Mfg. Co. v. Ransburg Electro-Coating Corp.*, 281 F. 2d 252 (7th Cir. 1960), *cert. dismissed*, 366 U. S. 211 (1961). This case does not warrant such a finding; therefore, it is without the purview of 35 U. S. C. § 285.

This court's findings of fact and conclusions of law under Rule 52(a) of the Federal Rules of Civil Procedure are embodied in the aforegoing opinion, whether or not expressly so characterized.

Counsel will prepare and submit an appropriate order.

/s/ (Illegible)
United States District Judge.